iNeuron

Churn Analytics

Architecture Design

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DOCUMENT CONTROL

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1. Introduction

1.1   What is Architecture Design Document?

Any software that depicts software design must have an architectural design. "The process of identifying a collection of hardware and software components and their interfaces to provide the foundation for the creation of a computer system," according to IEEE, is what architectural design is. One of these numerous architectures may be displayed by software created for computer-based systems.

Each style will outline a group of systems that includes:
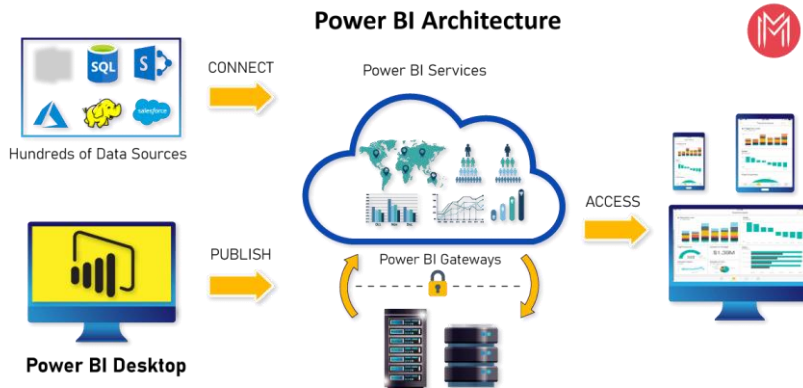
A collection of parts (such as a database or computing modules) that work together to carry out a specific task for the system.

- The set of connectors will support component cooperation, coordination, and communication.
- Requirements for integrating components into the system.
- Semantic models that aid in the designer's comprehension of the system's general characteristics.
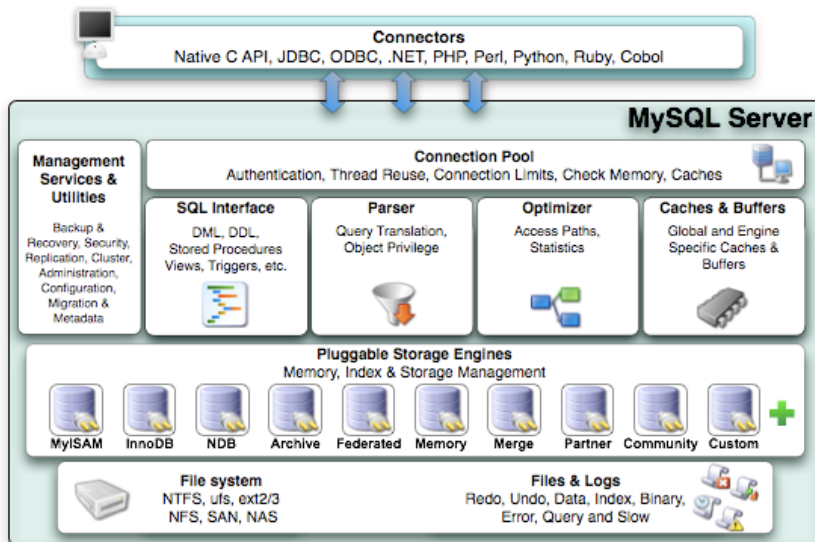
1.2   Scope

An architecture design method that incorporates an iterative refinement process is called an Architecture Design Document (ADD). Data structures, necessary software architecture, source code, and finally performance algorithms can all be designed using this method. Overall, during requirement analysis, the design concepts may be established, and then they may be improved upon throughout architectural design work.

2. Architecture

Source: https://mindmajix.com/power-bi-architecture

Source:
http://mysqlinternals.blogspot.com/2014/01/overview-of-mysql-architecture.html

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2.1   Power BI

Microsoft Power BI is a business intelligence (BI) platform that offers capabilities for data aggregation, analysis, visualisation, and sharing to non-technical business users. With its strong interaction with other Microsoft products, Power BI is a versatile self-service tool that requires little initial training. Its user interface is fairly intuitive for Excel users.

For businesses that must maintain their data and reports on-site, there is also Power BI Report Server. Power BI Desktop for Power BI Report Server is the specific desktop application that is needed for that version of Power BI.
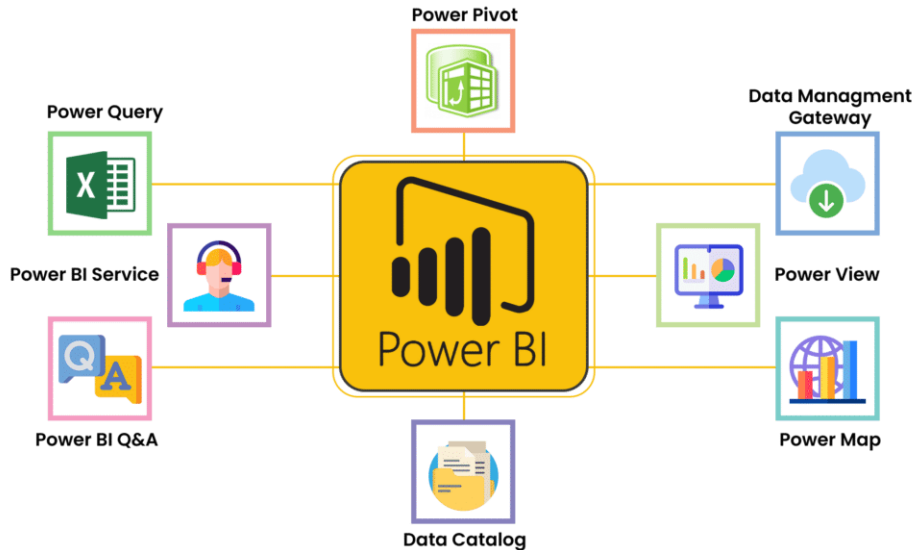
Common applications of Power BI

Data from an organization's sources are analysed using Microsoft Power BI. Power BI may assist in fusing separate data sets together, transforming and cleaning the data into a data model, and producing charts or graphs to show the data visually. Other Power BI users within the company can access and use all of this information.

Organizations can use the data models produced by Power BI in a variety of ways, including the following:

In order to ensure that departments achieve business metrics, it is important to tell stories using charts and data visualisations, explore "what if" scenarios within the data, and create reports that may provide real-time answers and assist with forecasting. Executive dashboards from Power BI can also be provided to administrators or managers, giving management additional understanding of how departments operate.

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2.2 Power BI Components

Source:

https://brain-mentors.com/wp-content/uploads/2020/10/Components-of-Power-BI-1024x576.png

Power Query: A tool for searching, gaining access to, and altering internal or external data sources.

Power Pivot: Used to execute analytics on data models retrieved from in-memory.

Power View: A tool for graphical data representation.

Power Map: A tool for geographical visualisation that models geospatial data on a map.

The Power BI Service makes it possible to share workbooks and data visualisations.

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Power BI FAQs: This can be used to ask queries and get answers right away with Natural Language Query.

Power BI Data Catalog: It allows for query searching and reuse.

Power BI Data Management: This can be used to inspect data fields, expose tables, and receive recurring data refreshers.

2.3   MySQL

Currently, MySQL is the most widely used database management system for relational databases. The Oracle Company supports this open-source database programme. As compared to Oracle Database and Microsoft SQL Server, it is a database management system that is quick, scalable, and simple to use. For the purpose of developing robust and dynamic server-side or web-based enterprise applications, it is frequently used in conjunction with PHP scripts.

It was created, promoted, and supported by the Swedish corporation MySQL AB. It was written in the C and C++ programming languages. The correct way to pronounce MySQL is My Ess Que Ell, not My Sequel. Both large and small businesses use MySQL.

MySQL works with C, C++, and Java to support a wide range of operating systems, including Windows, Linux, MacOS, and others.

A Relational Database Management System (RDBMS) called MySQL offers a number of features, including the following:

- It enables us to carry out operations on tables, rows, columns, and indexes in relation to databases.
- Tables, which are collections of rows and columns and are also referred to as relations, are used to define the database relationship.
- It gives different tables' rows or columns referential integrity.

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- We can automatically update the table indexes in MySQL database.
- For the benefit of the end users, it integrates important data from numerous tables using numerous SQL queries.

3. Deployment

Power BI

ARCHITECTURE DESIGN

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```
1 •   LOAD DATA INFILE 'C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\mta-customer-feedback-data.csv'
2     INTO TABLE data
3     FIELDS TERMINATED BY ',' ENCLOSED BY '"'
4     LINES TERMINATED BY '\r\n'
5     IGNORE 1 LINES;
6
7 •   SELECT * FROM data;
8     -- The dataset is successfully loaded.
9
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

Agency	Feedback	Subject_Matter	Subject_Detail	Issue_Detail	Year	Quarter	Branch_Line_Route
Subways	Complaint	Station /Bus Stop /Facility /Structure	Station - General	Unauthorized / Criminal Activity	2015	4	3
Long Island Rail Road	Commendation	Employees	CSR - Ambassador	Very Helpful/Friendly	2015	2	No Value
Long Island Rail Road	Commendation	Employees	CSR - Ambassador	Very Helpful/Friendly	2015	2	Port Jefferson
Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	Unspecified	2015	1	No Value
Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	Other	2015	2	Far Rockaway
Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	Very Helpful / Friendly	2015	2	No Value
Subways	Complaint	Station /Bus Stop /Facility /Structure	Station - General	Unauthorized / Criminal Activity	2015	4	C
Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	Very Helpful / Friendly	2014	3	No Value
Subways	Complaint	Station /Bus Stop /Facility /Structure	Station - General	Unauthorized / Criminal Activity	2015	4	No Value
Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	Very Helpful / Friendly	2015	1	No Value
Subways	Complaint	Station /Bus Stop /Facility /Structure	Station - General	Unauthorized / Criminal Activity	2015	4	F
Long Island Rail Road	Commendation	Employees	CSR - Information Booth	Very Helpful / Friendly	2015	1	City Terminal Zone
Long Island Rail Road	Commendation	Employees	CSR - Telephone	Very Helpful / Friendly	2014	3	No Value
Long Island Rail Road	Commendation	Employees	CSR - Telephone	Very Helpful / Friendly	2015	1	Ronkonkoma

MySQL

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